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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,884	01/03/2005	Yury Alexeevich Gramakov	U 015285-7	6310

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EXAMINER	
KHAN, SUHAIL	

ART UNIT	PAPER NUMBER
2686	

DATE MAILED: 07/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/510,884	GRAMAKOV ET AL.	
	Examiner	Art Unit	
	Suhail Khan	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 10/8/2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 1/3/2005.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 5 and 8-11 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2002/0034947 to Soliman, further in view of U.S. Patent App. Pub. No. 2002/0173269 to Grayson et al.

Referring to **claim 1**, Soliman discloses a method for cellular communications (page 3, paragraph 39, cellular telecommunications system), characterized in that a file in electronic form with fragments of a digital geographical map of the vicinity is preliminary introduced into a control center of a cellular communications system (page 2, paragraph 19, position database has map information depicting the coverage area of the first and second cells and the predetermined area; page 2, paragraph 15, position equipment includes GPS, hence map is a digital - electronic file and fragment of entire area map; page 2, paragraph 35, mobile switching center comprises a base station controller; figure 2 shows base station controller comprising position database; thus geographic map information is introduced into the mobile switching center which is interpreted as being the control center), the map comprising coordinates and characteristics of base stations arranged in cells and geographical coordinates of the borders of the cells (page 3, paragraph 45, base station positional detection system computes the distance of the mobile unit from the base station; page 9, paragraph 105, two or more base stations; thus exact location of base stations in

terms of coordinates is calculated; page 2, paragraph 19, position database has map information depicting coverage area of first and second cells and predetermined handoff area, coverage area of a base station entails base station characteristics), wherein in the process of radio communications (page 3, paragraph 39, cellular telecommunications system), data on the location of a corresponding mobile station for communication therewith are determined with the aid of a receiver of a satellite location determination system which receiver is built in a mobile station (page 8, paragraph 92, all wireless units in a geographical area positioned; page 2, paragraph 16, GPS receiver and signal disposed at a mobile unit), and are transmitted through a base station to the control center of the cellular communications system (figure 1 shows communication between mobile station and mobile switching center via base station, mobile switching center is interpreted as being the control center), and the file of a fragment of the digital geographical map is transmitted from the control center of the cellular communications systems through a corresponding base station to a mobile station (figure 1 shows communication between mobile station and mobile switching center via base station, mobile switching center is interpreted as being the control center; page 2, paragraph 19, position database has map information depicting the coverage area of the first and second cells and the predetermined area; page 2, paragraph 15, position equipment includes GPS, hence map is a digital - electronic file), the map comprising coordinates and characteristics of the base station of that cell where this mobile station is (page 3, paragraph 45, base station positional detection system computes the distance of the mobile unit from the base station; page 2, paragraph 16, GPS receiver and signal disposed at a mobile unit; thus exact location of base station in terms of coordinates is calculated, page 2, paragraph 19, position database has map information depicting coverage area of first and

second cells and predetermined handoff area, coverage area of a base station entails base station characteristics), coordinates and characteristics of the base station of neighboring cells with coordinates of their borders (page 2, paragraph 19, position database has map information depicting coverage area of first and second cells and predetermined handoff area, coverage area of a base station entails base station characteristics; page 4, paragraph 56, border), when there is a transition of the mobile station to another cell - "handover" (page 2, paragraph 19, handoff between first and second cells) - and/or when there is a transition from one cellular communications network to another – roaming (page 3, paragraph 39, mobile unit operating under the control of a given cellular telecommunications system moves outside the coverage area of the telecommunications system) - data on completion of the "handover" or conduction of the roaming and changes of the working parameters of communications channels and produced in the mobile station and transmitted to a corresponding control center of the cellular communications system (page 3, paragraph 47, mobile unit identifies pilot signals corresponding to a region near a handoff region, hence change in characteristics – parameters, and relays this pilot identification to the base station controller via base station; base station controller exists in the mobile switching center, which is interpreted as being the control center). Soliman does not disclose that the comparison of current data of its location and the coordinates of cell borders is carried out in the mobile station. The examiner maintains that the concept that the comparison of current data of its location and the coordinates of cell borders is carried out in the mobile station was well known as taught by Grayson et al.

However, in the similar field of endeavor, Grayson et al show comparison of the mobile station's position vis-a-vis the current cell indicating that the mobile station is approaching the edge of the cell (page 6, paragraph 97).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Soliman to show a method for cellular communications, characterized in that a file in electronic form with fragments of a digital geographical map of the vicinity is preliminary introduced into a control center of a cellular communications system, the map comprising coordinates and characteristics of base stations arranged in cells and geographical coordinates of the borders of the cells, wherein in the process of radio communications, data on the location of a corresponding mobile station for communication therewith are determined with the aid of a receiver of a satellite location determination system which receiver is built in a mobile station, and are transmitted through a base station to the control center of the cellular communications system, and the file of a fragment of the digital geographical map is transmitted from the control center of the cellular communications systems through a corresponding base station to a mobile station, the map comprising coordinates and characteristics of the base station of that cell where this mobile station is, coordinates and characteristics of the base station of neighboring cells with coordinates of their borders, then a comparison of current data of its location and the coordinates of cell borders is carried out in the mobile station, when there is a transition of the mobile station to another cell - "handover" - and/or when there is a transition from one cellular communications network to another - roaming - data on completion of the "handover" or conduction of the roaming and changes of the working parameters of communications channels and produced in the mobile station and transmitted to a corresponding

control center of the cellular communications system, as taught by Grayson et al, the motivation being to trigger the transmission of the mobile station's position (page 6, paragraph 97).

Referring to **claim 2**, Soliman discloses the method according to claim 1, characterized in that synchronization of operation of the mobile and base stations is carried out in accordance with signals of a satellite location determination system (page 7, paragraph 83, base stations and wireless units are synchronized to GPS time).

Referring to **claim 5**, Soliman discloses the method according to claim 1, characterized in that microcells within a cell that have working communication parameters different from working communication parameters of the instant cell (page 1, paragraph 9, macrocells overlaying microcells), in particular other types of radio interfaces, protocols, communication standards, are dedicated, wherein coordinates of border and working parameters of these microcells, recorded in the control center of the cellular communications system, are transmitted through corresponding base stations to mobile stations located in the microcells (page 3, paragraph 47, mobile unit identifies pilot signals corresponding to a region near a handoff region, hence change in characteristics – parameters, and relays this pilot identification to the base station controller via base station; base station controller exists in the mobile switching center, which is interpreted as being the control center; page 4, paragraph 56, border; page 2, paragraph 19, position database has map information depicting the coverage area of the first and second cells and the predetermined area; page 2, paragraph 35, mobile switching center comprises a base station controller; figure 2 shows base station controller comprising position database; thus geographic map information is in mobile switching center which is interpreted as being the

control center; figure 1 shows communication between mobile station and mobile switching center via base station, mobile switching center is interpreted as being the control center).

Referring to **claim 8**, Soliman discloses the method according to claim 1, characterized in that during the transmission of the file of the fragment of the digital geographical map (page 2, paragraph 19, position database has map information depicting the coverage area of the first and second cells and the predetermined area; page 2, paragraph 15, position equipment includes GPS, hence map is a digital - electronic file and fragment of entire area map) from the control center of the cellular communications system through a base station to a corresponding mobile station (page 2, paragraph 35, mobile switching center comprises a base station controller; figure 2 shows base station controller comprising position database; thus geographic map information is in the mobile switching center which is interpreted as being the control center; figure 1 shows communication between mobile station and mobile switching center via base station), adaptation of the dimensions and configuration of the cells and also conditions providing for "handover" to a load created by mobile stations in a cell are carried out (page 2, paragraph 19, position database has map information depicting the coverage area of the first and second cells and the predetermined handoff area; thus adaptation of cells takes place).

Referring to **claim 9**, Soliman discloses the method according to claim 1, characterized in that depending on the location of a mobile station in a definite cell or definite zone of cellular network communication, of each mobile station, the priorities of access to communications services of the extreme qualitative communication characteristics are determined or access to the communications services or a portion of the communications services on separate sections of the cellular communications zone or the cell is eliminated (page 2, paragraph 19, coverage area of

first and second cells and predetermined handoff area; mobile station; location compared to map information and control signal provided when location is within predetermined handoff area; handoff area determined based on change in communication characteristics) .

Referring to **claim 10**, Soliman discloses the method according to claim 1, characterized in that a pointwise or zone tariffing of communication services provided to clients is provided with an arbitrary configuration of the zones (page 10, paragraph 107, charge different rates at different locations within the system).

Referring to **claim 11**, Soliman discloses the method according to claim 1, characterized in that current data on the location of a mobile station (page 4, paragraph 51, position of the mobile unit), which are available to a mobile client of a cellular network on a global scale (page 5, paragraph 67, Global System for Mobile Communications), are used to select a mobile communications network and an accessible type of service within that network by a corresponding programming of the mobile station by a client or operator of mobile communications, including taking into account tariffs for communication services in communication networks of different operators (page 10, paragraph 107, charge different rates at different locations within the system; page 10, paragraph 106 ensure that the caller is a registered system user for billing purposes).

3. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2002/0034947 to Soliman, in view of U.S. Pat. App. Pub. No. 2003/0013452 to Hunt et al. and further in view of U.S. Patent App. Pub. No. 2001/0004604 to Toshimitsu et al.

Referring to **claim 3**, Soliman discloses the cellular communications method according to claim 1 (page 3, paragraph 39, cellular telecommunications system) and the geographical map

(page 2, paragraph 19, position database has map information depicting the coverage area of the first and second cells and the predetermined area). Soliman does not disclose that the dimension of the fragment of the geographical map transmitted to the mobile station and the periodicity of transmission of data on its location by that mobile station to the control center of the cellular communications system are changed depending on the speed of movement of the mobile station. The examiner maintains that the concept that the dimension of the fragment of the geographical map transmitted to the mobile station and the periodicity of transmission of data on its location by that mobile station to the control center of the cellular communications system are changed depending on the speed of movement of the mobile station was well known as taught by Hunt et al. and Toshimitsu et al.

However, in the similar field of endeavor, Hunt et al. disclose that the speed of a station determines the size of data transmitted (page 3, paragraph 4) and Toshimitsu et al disclose establishing transmission period on the basis of the moving speed of the radio mobile station (page 11, paragraph 132).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Soliman to show that the dimension of the fragment of the geographical map transmitted to the mobile station and the periodicity of transmission of data on its location by that mobile station to the control center of the cellular communications system are changed depending on the speed of movement of the mobile station, as taught by Hunt et al. and Toshimitsu et al., the motivation being efficient handover (Hunt et al., page 1, paragraph 6) and optimal transmission without using external sensors (Toshimitsu et al., page 11, paragraph 132).

4. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2002/0034947 to Soliman, in view of U.S. Patent App. Pub. No. 2003/0069043 to Chhaochharia et al.

Referring to **claim 4**, Soliman discloses the method according to claim 1, to determine the current data on the location of the mobile station (page 2, paragraph 19, location of the mobile station). Soliman does not disclose that the data is used to control parameters of adaptive multibeam antenna systems of base stations communicating with the mobile station, including parameters for directing a directional characteristic of antenna systems toward the mobile station. The examiner maintains that the concept that the current data on the location of the mobile station are used to control parameters of adaptive multibeam antenna systems of base stations communicating with the mobile station, including parameters for directing a directional characteristic of antenna systems toward the mobile station was well known as taught by Chhaochharia et al.

However, in the similar field of endeavor, Chhaochharia et al disclose multibeam directional elements as part of a base station (page 6, paragraph 70).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Soliman to show that the current data on the location of the mobile station are used to control parameters of adaptive multibeam antenna systems of base stations communicating with the mobile station, including parameters for directing a directional characteristic of antenna systems toward the mobile station, as taught by Chhaochharia et al, the motivation being flexibility of the network (page 6, paragraph 69).

5. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2002/0034947 to Soliman, in view of U.S. Patent App. Pub. No. 2004/0224702 to Chaskar.

Referring to **claim 6**, Soliman discloses the cellular communications method according to claim 1 (page 3, paragraph 39, cellular telecommunications system) and macrocells overlaying microcells (page 1, paragraph 9). Soliman does not disclose that the height of location of a mobile station above the surface of the earth, in respect to which corresponding cells or microcells are dedicated, is selected as one of the working parameters, and a vertical "handover" is provided for. The examiner maintains that the concept that the height of location of a mobile station above the surface of the earth, in respect to which corresponding cells or microcells are dedicated, is selected as one of the working parameters, and a vertical "handover" is provided for was well known as taught by Chaskar.

However, in the similar field of endeavor, Chaskar discloses defining the geographical location of the mobile station in terms of the Z coordinate, i.e. vertical direction (page 3, paragraph 24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Soliman to show that the height of location of a mobile station above the surface of the earth, in respect to which corresponding cells or microcells are dedicated, is selected as one of the working parameters, and a vertical "handover" is provided for, as taught by Chaskar, the motivation being to define the location in mountainous environments or in cities with tall buildings (page 3, paragraph 24).

6. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2002/0034947 to Soliman, in view of U.S. Patent No. 6215987 to Fujita, and further in view of Official Notice (MPEP 2144.03)

Referring to **claim 7**, Soliman discloses the cellular communications method according to claim 1 (page 3, paragraph 39, cellular telecommunications system) and calculating the distance between the mobile station and the base station (page 2, paragraph 15) and generating digital geographical maps used in the control center of the cellular communications system (page 2, paragraph 19, map in position database; figure 1 shows position database resides in the mobile switching center which is interpreted as the control center). Soliman does not disclose that the power level of transmitters of mobile and base stations are adjusted depending on their distance from one another on the basis of location data of the mobile and base station. The examiner maintains that the concept that power level of transmitters of mobile and base stations are adjusted depending on their distance from one another on the basis of location data of the mobile and base station was well known as taught by Fujita and in view of Official Notice

However, in the similar field of endeavor, Fujita discloses providing a mobile station system with a power control to set power levels according to the distance between a base station and mobile station (col 4, lines 9-15). And the Examiner takes official notice of the fact that it is notoriously well known to one of ordinary skill in the art that functionality can be transferred between the base station and mobile station for resource utilization.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Soliman to show that the power level of transmitters of mobile and base stations are adjusted depending on their distance from one another on the basis of location data

of the mobile and base station, and also of digital geographical maps, used in the control center of the cellular communications system as taught by Fujita and in view of Official Notice.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to location determining system assisted hand-off.

U.S. Pat. No. 6631263 to Corkery

U.S. Pat. No. 5432842 to Kinoshita et al.

U.S. Pat. App. Pub. No. 2003/0224804 to Liu

U.S. Pat. No. 6813508 to Shioda et al.

U.S. Pat. No. 6097957 to Bonta et al.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suhail Khan whose telephone number is (571) 272-7910. The examiner can normally be reached on M-F from 8 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached at (571) 272-7905.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sk

Marsha D Banks-Harold

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